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Soil and Groundwater Investigation Report
UST LOP Case #I-7631

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Othr e# 123608
T. B. P.

Prepared for

The Fine Line Paint Corporation

Performed at

The Fine Line Paint Corporation
12200 Los Nietos Road
Santa Fe Springs, CA

Submitted for review of the

Los Angeles County Department of Public Works
UST Local Oversight Program
Annex Building - Second Floor
P.O. Box 1460
Alhambra, CA 91802-1460

February 8, 1995

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DATE 4/25/96
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Soil and Groundwater Investigation Report
Fine Line Paint Corporation
12200 Los Nietos Road
Santa Fe Springs, CA

Table of Contents

1.0 Introduction

This report outlines the procedures followed during the subsurface investigation performed at the Fine Line Paint Corporation, 12200 Los Nietos Road Santa Fe Springs, California.

Exhibit #1: Site Location Map, USGS, Whittier Quadrangle

Previously removed from the Fine Line facility were three (3) underground storage tanks removed by Petroleum Industry Consultants (PIC). Soil samples collected following the tank removal indicated elevated levels of petroleum hydrocarbons; in response to those hydrocarbon levels the UST LOP mandated a site assessment to determine the lateral and vertical extent of migration in the area of previously removed tank.

Significant site investigation has been conducted to date by Fine Line Paint Corp. Soil borings, and groundwater monitoring wells, have been installed by three respective contracting firms. Those samples are presented in tabular form below:

Boring/ Well #	Drilling date	Location	Enviro firm	Total depth	Purpose	Remark
01	1/22/87	Northeast of tank pit	PIC	44	Investigative boring	
02	1/22/87	East of tank pit	PIC	41.5	Investigative boring	
03	1/22/87	Northwest of tank pit	PIC	21.5	Investigative boring	
04	1/22/87	Former diesel tank pit	PIC	21.5	Investigative boring	Located on the west side, near former diesel tank #4
B-1	12/7/87	North side of tank pit	PIC	30	Vapor recovery well	B- designation changed to V for soil vapor well
B-2	12/7/87	South side of small tank	PIC	30	Vapor recovery well	B- designation changed to V for soil vapor well
B-1	5/16/91	North of tank pit	EMA	40	Investigative borehole	
B-2	5/16/91	South of tank pit	EMA	40	Investigative borehole	
B-3	5/16/91	East of tank pit	EMA	40	Investigative borehole	
B-4	5/16/91	West of tank pit	EMA	40	Investigative borehole	Slant boring
B-5	8/23/93	West of former tank #3	Amwest	65	Investigative borehole	Later converted to monitoring well

Boring/ Well #	Drilling date	Location	Enviro firm	Total depth	Purpose	Remark
B-6	8/23/93	Middle of former tank 4	Amwest	65	Investigative borehole	
MW-1	6/13/94	North of tank pit	Amwest	75	Monitoring well	
MW-2	6/13/94	South of the former tank #3 and southern border of open area	Amwest	75	Monitoring well	

Exhibit #2: Previous Boring and Existing Well Locations

In response to the data compiled during the above referenced investigations, two (2) additional borings are proposed to define the lateral extent of hydrocarbon impacted soils prior to the completion of a site remediation project at the site.

2.0 Investigative Procedures

On January 19, 1995, two (2) soil borings (B6 and B7) were installed to a total depth of 55 feet below existing grade. The drilling was performed by ABC Liovin Drilling Co. of Stanton, California utilizing a truck mounted rig equipped with continuous-flight hollow-stem augers. The soil cuttings generated during the advancement of the borings were stored in DOT approved 55 gallon drums pending the receipt and evaluation of the laboratory analytical reports. The drums are currently stored on site pending disposition.

2.1 Soil Sampling

Soil samples were collected through the annulus of the auger in 2-inch diameter brass sampling tubes contained in a split-spoon sampler. The sampler was driven into the underlying soil by a 140 pound hammer having a 30-inch drop. Drilling augers were pre-cleaned prior to the initiation of work, and sufficient auger lengths were brought to the site to allow use of clean auger for the total length of the described boring. Prior to the first sampling episode, and before each successive sampling episode, the sampling equipment was washed in a solution of non-phosphate detergent, rinsed once in tap water, then once in distilled water.

The soil samples were collected at 5-foot intervals in each boring, beginning at a nominal depth of 10 feet below existing grade. Soils were described in accordance with the Unified Soil Classification System (USCS); those soil descriptions and blow counts are detailed in the field boring logs. Each of the samples were driven 18" into the soil; however, the first 6" of each drive was disregarded as the interval necessary to adequately set the sampler into undisturbed soil.

Boring B6 was advanced approximately five feet from the eastern building on the Fine Line property. That boring was advanced at an angle of 10^{o} from vertical, directed beneath the eastern building. Given those field parameters, the distance of that boring beneath the building would be calculated as :

$$\sin 10^{0} = \text{opposite} / \text{hypotenuse}$$

where:
Angle of boring = 10^{o}
Total length of boring (hypotenuse)= 55 feet
Distance between vertical and boring endpoint = opposite

Given the above data, the boring extended 9.55 feet away from direct vertical. Given that the boring was located 5 feet from the building, the boring reached 4.5 feet past the edge of the building.

The nominal depths of each sample in boring B6 retain the number of auger feet used to drill the borings. That is, sample B6-45 was not truly collected at 45 feet below grade because the boring was drilled on an angle, but we refer to that boring as B6-45. The actual depth of each sample would be calculated as:

$$\cos 10^0 = \text{adjacent} / \text{hypotenuse}$$

where:
Angle of boring = 10^o
Total length of boring (hypotenuse) = 55 feet
Total depth of boring = adjacent

Using the above formula, the nominal 55 foot sample would in fact have been collected from 54.1 feet below grade. Given the minimal discrepancy associated with the angle drilling, we have chosen to ignore that difference and refer to the soil samples from boring B6 by their nominal depths.

Boring B7 was advanced near the western end of the Fine Line yard to a depth of 55 feet below existing grade. That boring was advanced vertically, in an effort to define the lateral extent of VOC migration in that area.

Upon collection, the middle of the three soil sample cylinders was topped with Teflon sheeting and capped with plastic caps. Care was taken to ensure that no headspace was allowed in the sample cylinders. The samples were then labeled with a unique sample identification number, wrapped in plastic bags, and placed in an ice chest at approximately 4 degrees centigrade. A chain of custody was prepared and the samples were transported under strict chain of custody documentation to the laboratory on January 19, 1995.

2.2 Monitoring Well Measurement, Purging, and Sampling

Following the soil sampling January 19, 1995, each of the groundwater monitoring wells was purged and sampled on January 25, 1995. Each of the groundwater monitoring wells had been previously surveyed to determine it's elevation precise to .01 feet above mean sea level. The depth to groundwater from the top of the respective casings was measured prior to the groundwater purging.

The wells were purged by lowering a submersible pump into the well casing; the purge water was periodically sampled and tested for pH, conductivity, and temperature. As those

parameters were beginning to stabilize, the purge water was also tested for turbidity using an ICM model 11520 turbidity meter. Prior to sampling, three consecutive measurements within 0.1 pH unit, one degree fahrenheit, and 10% conductivity were obtained. Turbidity had reached asymptotic levels near or below 10 Nephelometric Turbidity Units (NTU's) before each sampling.

The depth to ground water at 80% recharge was calculated prior to purging of each well. More than 3 wetted well casing volumes were purged from each well prior to sampling. Water samples were collected from each well immediately upon 80% recharge of the water column as indicated by the audio alarm on a water-level meter.

Exhibit #3: Monitoring Well Purging/Sampling Data Sheets

Prior to sampling, the bailer was washed in non-phosphate detergent, rinsed in tap water, and rinsed in distilled water. This procedure was repeated prior to the sampling of each well. Each of the water samples was obtained by lowering a Teflon bailer into the well after removal of the pump used for purging. The bailer was fitted with a flow control valve and the water was metered into 40 ml glass vials with a Teflon septa lid. No headspace was allowed in the sample vials. The samples were then labeled with a unique sample identification number, wrapped in plastic bags, and placed in an ice chest at approximately 4 degrees centigrade. The samples were transported under strict chain of custody documentation to the analytical laboratory on January 19, 1995.

3.0 Findings

3.1 Laboratory Analyses

Chemical tests followed the UST LOP protocols for site investigations involving a wide range of organic compounds. Soil samples collected during this investigation were analyzed by EPA methods 8015 modified for gasoline and 8260 for volatile organic compounds by capillary column. The groundwater samples collected from the monitoring wells were analyzed by EPA method 624 for the presence of volatile organic compounds.

Chemical analyses were performed by Associated Laboratories of Orange, California. Associated is certified by the State of California, Department of Health Services, to perform the referenced analyses. Quality control procedures following the guidelines of the Regional Water Quality Control Board; appropriate QA/QC documentation is included in the laboratory analysis reports.

The following tables detail the results of the sample analyses. Organic compound concentrations in each of the tables is presented in units of mg/kg, or parts per million (ppm). Only the compounds which were detected in the borings are listed in the tables.

Table 1: Soil sample analytical results - Boring B6

Compound	B6-10	B6-15	B6-20	B6-25	B6-30	B6-35	B6-40	B6-45	B6-50	B6-55
TPH gas	ND	1,600	30	67	15	--	--	ND	--	ND
Acetone	5.520	109.00	50.00	13.40	ND	--	ND	ND	.107	ND
1,1-DCE	ND	ND	ND	ND	ND	--	ND	ND	.008	.006
1,1-DCA	0.12	ND	ND	.005	.006	--	ND	ND	ND	.002
2-butanone	3.340	144.00	191.00	304.00	ND	--	ND	ND	ND	ND
TCA	.007	.016	ND	.008	.007	--	ND	ND	.129	.019
Benzene	ND	.001	ND	.001	.017	--	ND	ND	ND	.0005
4-methyl-2-pentanone	ND	.086	ND	.141	ND	--	ND	ND	ND	ND
Toluene	.032	7.00	.048	.367	1.250	--	.143	.002	ND	.015
2-Hexanone	ND	.020	ND	ND	ND	--	ND	ND	ND	ND
PCE	ND	.026	ND	ND	ND	--	ND	ND	ND	ND
Ethyl benzene	.002	.498	.008	ND	.002	--	ND	ND	ND	ND
Xylenes	.025	5.00	ND	ND	.011	--	ND	ND	ND	ND
Propyl benzene	.001	.085	ND	ND	ND	--	ND	ND	ND	ND
Isopropyl benzene	ND	.030	ND	.0009	ND	--	ND	ND	ND	ND
1,3,5-Trimethylbenz	.008	.317	ND	.009	ND	--	ND	ND	ND	ND
tert-Butylbenzene	.003	ND	ND	ND	ND	--	ND	ND	ND	ND
1,2,4-Timethylbenz	.036	.459	ND	.034	.001	--	ND	ND	ND	ND
sec-Butylbenzene	.001	.034	ND	ND	ND	--	ND	ND	ND	ND
4-Isopropyltoluene	.003	.052	ND	.001	ND	--	ND	ND	ND	ND
n-Butylbenzene	ND	.096	ND	.004	ND	--	ND	ND	ND	ND
Napthalene	.058	1.030	.012	.032	.003	--	ND	ND	ND	ND

ND = Not detected at the practical quantitation limit
-- = Sample not analyzed

Table 2: Soil sample analytical results - Boring B7

Compound	B7-10	B7-15	B7-20	B7-25	B7-30	B7-35	B7-40	B7-45	B7-50	B7-55
TPH gas	ND	ND	ND	ND	--	10	--	ND	--	ND
Acetone	ND	ND	ND	ND	--	ND	ND	ND	ND	ND
1,1-DCE	.001	ND	ND	.005	--	.004	.055	ND	ND	.023
1,1-DCA	ND	ND	ND	.004	--	.024	.013	ND	ND	ND
Chloroform	ND	ND	.0006	.001	--	ND	ND	ND	ND	ND
2-butanone	ND	ND	ND	ND	--	ND	ND	ND	ND	ND
TCA	.024	ND	.001	.014	--	.022	.373	ND	ND	.025
Benzene	ND	ND	ND	ND	--	.006	ND	ND	ND	.0007
4-methyl-2-pentanone	ND	ND	ND	ND	--	ND	ND	ND	ND	ND
Toluene	.001	ND	.0009	.001	--	.830	.005	ND	ND	.001
2-Hexanone	ND	ND	ND	ND	--	ND	ND	ND	ND	ND
PCE	.007	ND	ND	ND	--	ND	ND	ND	ND	.0009
Ethyl benzene	ND	ND	ND	.001	--	.003	ND	ND	ND	ND
Xylenes	ND	ND	ND	.002	--	.024	ND	ND	ND	ND
Propyl benzene	ND	ND	ND	ND	--	ND	ND	ND	ND	ND
Isopropyl benzene	ND	ND	ND	ND	--	ND	ND	ND	ND	ND
1,3,5-Trimethylbenz	ND	ND	ND	ND	--	.0005	ND	ND	ND	ND
tert-Butylbenzene	ND	ND	ND	ND	--	ND	ND	ND	ND	ND
1,2,4-Timethylbenz	ND	ND	ND	ND	--	.002	ND	ND	ND	ND
sec-Butylbenzene	ND	ND	ND	ND	--	ND	ND	ND	ND	ND
4-Isopropyltoluene	ND	ND	ND	ND	--	ND	ND	ND	ND	ND
n-Butylbenzene	ND	ND	ND	ND	--	ND	ND	ND	ND	ND
Napthalene	ND	ND	ND	ND	--	.001	ND	ND	ND	ND

ND = Not detected at the practical quantitation limit
-- = Sample not analyzed

Table 3: Groundwater sample analytical results

Compound	MW-1	B5	MW-2
TPH gas	0.8	0.8	0.8
1,1-DCE	1.600	2.580	2.170
1,1-DCA	.039	.046	.044
1,2-DCE	.016	ND	.014
TCA	2.640	3.490	3.950
Benzene	.015	ND	ND
TCE	.149	.048	.156
PCE	.140	.063	.142
Trichlorofluoromethane	.040	ND	.039
Methylene Chloride	ND	ND	.019

ND = Not detected at the practical quantitation limit

Appendix B: Laboratory Analysis Report, Associated Laboratories, Inc.

3.2 Site Geologic Features

The subsurface lithology encountered during this investigation consisted of very fine silty sands from existing grade to approximately 40 feet below existing grade. Below those sands a medium grained, poorly graded sand was present to the terminal depth of each boring. The boring logs compiled during the course of this investigation found no subsurface fractures or

faults in the underlying substrate. Additionally, no man-made conduits which could increase the vertical migration of contamination were found as a result of the borings and superficial inspection of the site.

Appendix A: Boring Logs, Harrison/Roberts Environmental Management, 1995

3.3 Groundwater Gradient and Direction of Flow

Casing elevations, depth to groundwater, and water surface elevations of the respective wells are presented in the following table. All elevations are presented in feet above mean sea level.

Well #	Casing elevation	Depth to water	Water elevation
MW-1	159.28	51.05	108.23
B-5	158.87	50.76	108.11
MW-2	159.74	52.16	107.58

Based on the above referenced measurements, the direction of groundwater flow is calculated as approximately 220°, or approximately 50° south of west. The hydraulic gradient is calculated as 0.0090 or approximately 47 feet per mile.

Exhibit #4: Groundwater Monitoring Well Locations, Direction of Groundwater Flow

4.0 Observations & Conclusions

Boring B6 advanced during the course of this investigation identified a variety of volatile organic compounds in the soil matrix. Of those compounds listed in the tables of section 3.1, acetone, 2-butanone, and toluene are present at appreciable levels from 10 feet below grade to 25 feet below existing grade. Those soils are targeted as part of the impending site remediation project by excavation of the affected soils.

Traces of volatile organic compounds, on the part per billion level, were also found in boring B7. However, those traces are near the actual method detection limit, and we believe that the samples from that boring serve to practically define the lateral extent of VOC impacted soils east of the prior tank location.

No evidence of VOC contamination was detected at 45 feet below grade in boring B7; boring B6 ~~B8~~ indicated only 2 ppb of toluene at 45 feet below grade. At 50 feet below grade, no evidence whatsoever of VOC contamination was detected in boring B7; 1,1,1-TCA was detected at 129 ppb (below the MCL of 200 ppb) and 1,1-DCE was detected at 8 ppb (MCL of 6 ppb) in boring B6. Soil samples collected from 55 feet below grade were below the level of groundwater and should be considered contaminated by that water. The absence of significant concentrations of volatile organic compounds in the referenced soil samples suggests that:

1. The lateral extent of VOC impacted soil has been substantially defined by the borings completed to date. Those soils are apparently limited to an area in the immediate vicinity of the tank excavation.

2. The vertical extent of VOC impacted soils is restricted to less than 40 feet below existing grade. No evidence is present in soils near the groundwater table to indicate that the near surface soil contamination has reached the level of groundwater.

The groundwater samples collected during this investigation indicated significant levels of 1,1,1-trichloroethane (TCA) and 1,1-dichloroethene (DCE). DCE is typically a degradation product of TCA. The concentrations of TCA in the water samples (ranging from 2.6 to 3.9 ppm) are many times higher than the cumulative levels of TCA in the entire soil column overlying the groundwater. Additionally, the high concentrations of DCE in the groundwater indicate a long period of degradation in the water. We believe those factors combined present a strong possibility for an upgradient source of the groundwater contamination. The presence of TCE and PCE in the groundwater samples, compounds that were absent from the soil matrix, further support the conclusion of an off site source.

With regard to the pending remediation project, excavation of the VOC impacted soils can be completed quickly and we believe will address the affected soils within the guidelines of the UST LOP mandate. If the excavation is completed to 25 feet below existing grade, soils will be removed which will leave the following profile of affected soils in place:

Boring B6

Compound	B6-30	B6-35	B6-40	B6-45	B6-50	MCL
TPH gas	15	--	--	ND	--	--
Acetone	ND	--	ND	ND	.107	--
1,1-DCE	ND	--	ND	ND	.008	.006
1,1-DCA	.006	--	ND	ND	ND	.0005
TCA	.007	--	ND	ND	.129	.200
Benzene	.017	--	ND	ND	ND	.001
Toluene	1.250	--	.143	.002	ND	.100
Ethyl benzene	.002	--	ND	ND	ND	.680
Xylenes	.011	--	ND	ND	ND	1.750
1,2,4-Timethylbenz	.001	--	ND	ND	ND	--
Napthalene	.003	--	ND	ND	ND	--

Note: 55 foot samples removed due to immersion below groundwater level
Only detected compounds included on chart
ND = Not detected at the practical quantitation limit

Boring B7

Compound	B7-30	B7-35	B7-40	B7-45	B7-50	MCL
TPH gas	--	10	--	ND	--	--
Acetone	--	ND	ND	ND	ND	--
1,1-DCE	--	.004	.055	ND	ND	.006
1,1-DCA	--	.024	.013	ND	ND	.0005
TCA	--	.022	.373	ND	ND	.200
Benzene	--	.006	ND	ND	ND	.001
Toluene	--	.830	.005	ND	ND	.100
PCE	--	ND	ND	ND	ND	.005
Ethyl benzene	--	.003	ND	ND	ND	.680
Xylenes	--	.024	ND	ND	ND	1.750
1,3,5-Trimethylbenz	--	.0005	ND	ND	ND	--
1,2,4-Timethylbenz	--	.002	ND	ND	ND	--
Napthalene	--	.001	ND	ND	ND	--

Note: 55 foot samples removed due to immersion below groundwater level
Only detected compounds included on chart
ND = Not detected at the practical quantitation limit

As the above tables indicate, the proposed remediation strategy will remove virtually all soils that contain VOC's above the maximum contaminant levels in *drinking water.* An exception to that criteria would be the concentration of toluene at 30 feet below grade However, if LUFT manual cumulative contaminant levels are utilized, an acceptable toluene concentration in the soil would be 3.00 ppm where annual precipitation is 12.1 to 14 inches per year and the distance to the highest groundwater level is 10 to 14.9 feet.

5.0 Limitations of Investigation

Our investigation was performed using the degree of care and skill ordinarily exercised, under similar circumstances, by reputable environmental and soil specialists practicing in this or similar localities. The samples taken and used for testing and the observations made are believed representative of the entire project; however, soil and geologic conditions as well as groundwater conditions can vary between borings, wells, test pits, and surface outcrops.

This report is issued with the understanding that it is the responsibility of the owner, or of his representative, to ensure that the information and recommendations contained herein are brought to the attention of the appropriate regulatory agencies.

The interpretations and recommendations of this report are based on the data collected and our present working knowledge of site assessments and underground storage tank investigations. As such, this report is valid as of the date shown and we cannot be responsible for subsequent changes in physical conditions and/or legislation over which we have no control.

Compiled by:

Robert M. Blankenship, B.A.
Project Manager

Robin Chang, Ph.D., R.G.
State of California Registered Geologist

Exhibit #1: Site Location Map, USGS, Whittier Quadrangle

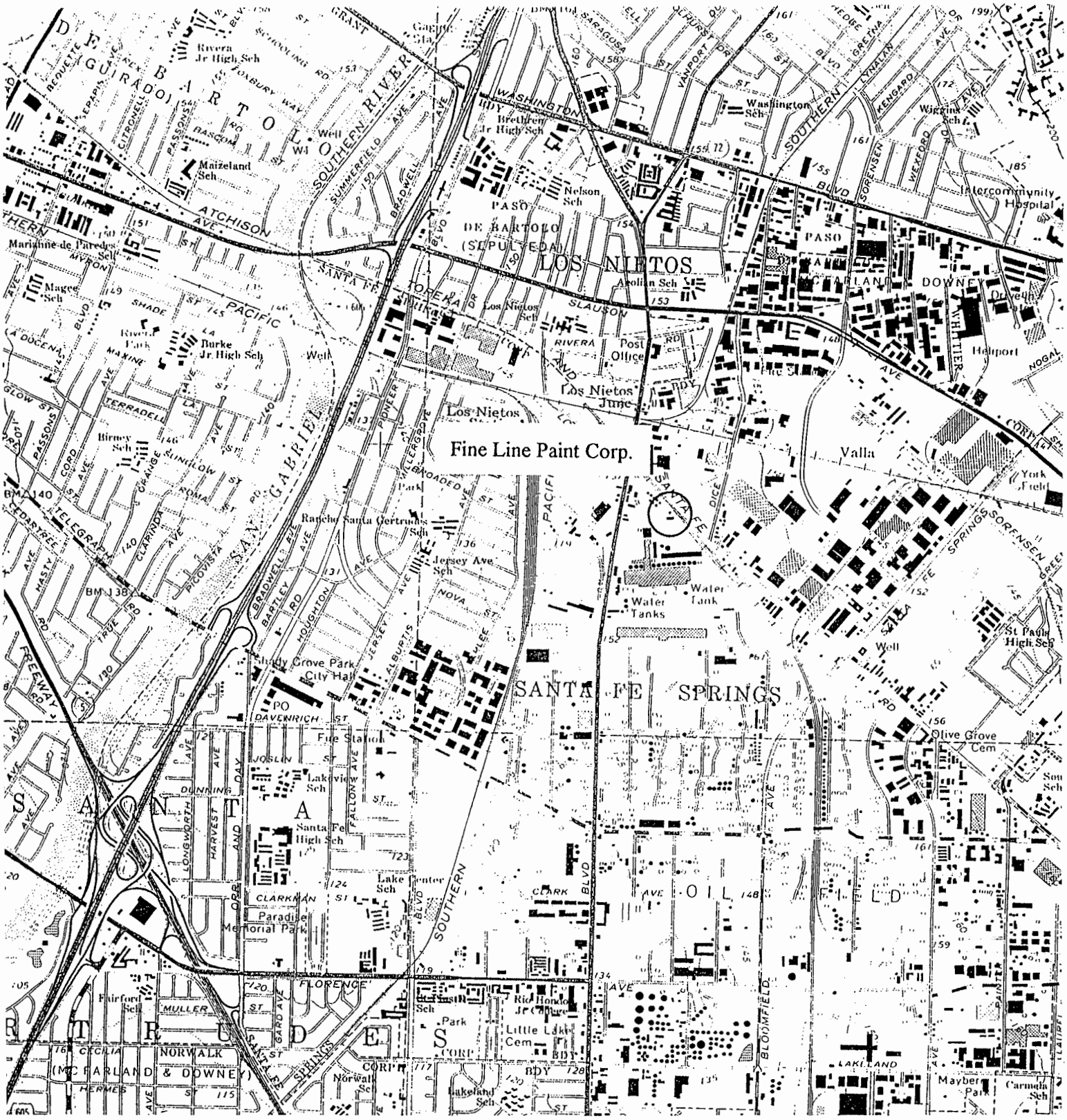
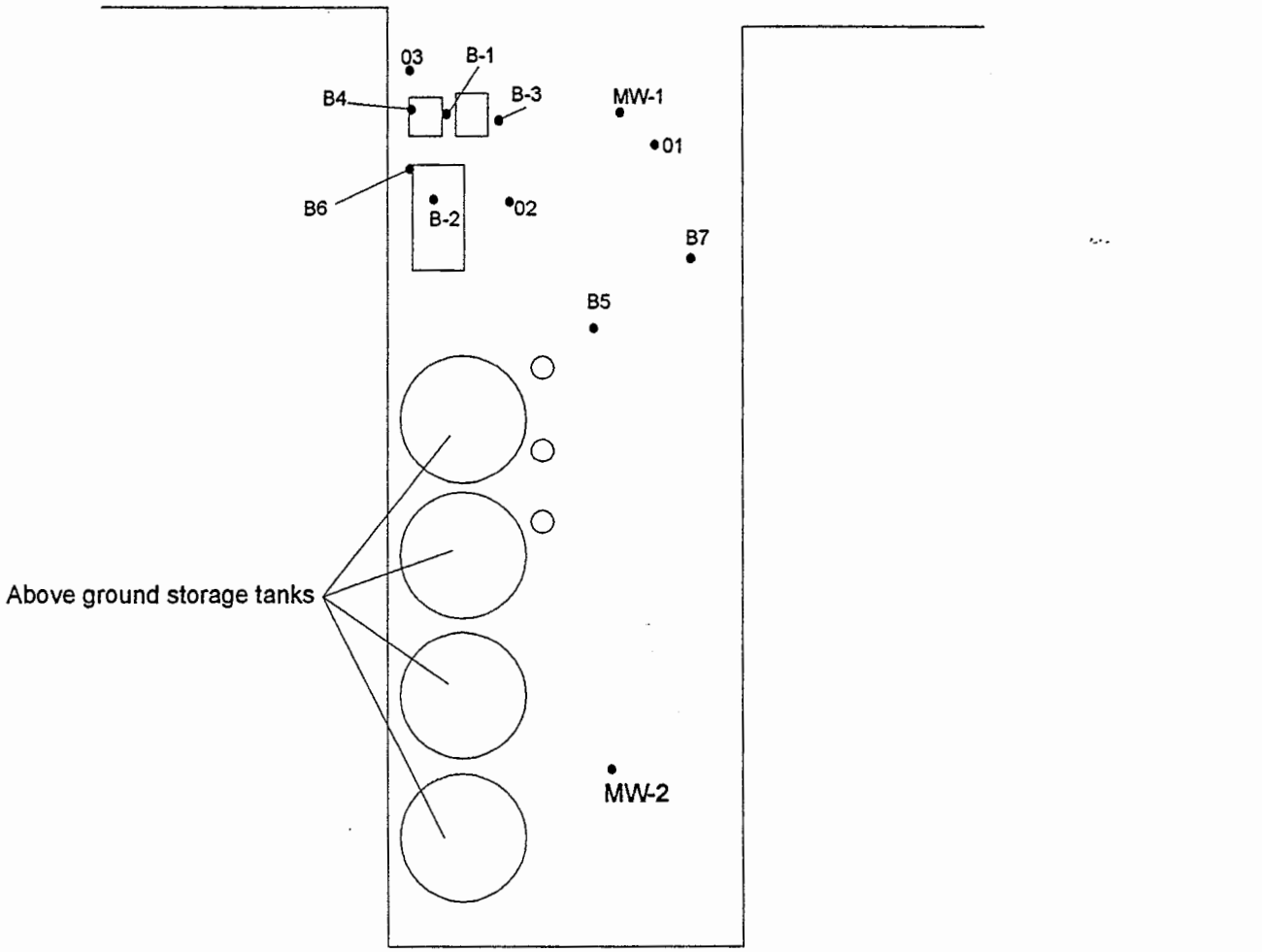

Fine Line Paint Corp.
SANTA FE SPRINGS
LOS NIETOS
DE BARTOLO (SPUR)
PASO
SCALE 1:24 000
1 0 1 MILE
1000 0 1000 2000 3000 4000 5000 6000 7000 FEET
1 5 0 1 KILOMETER
CONTOUR INTERVAL 5 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929
CALIF
QUADRANGLE LOCATION

Exhibit #2: Previous Boring and Existing Well Locations

Fine Line Paint Corp.
Previous Boring and Existing Well Locations



Dependable Equipment Rental 841 E. Washington Avenue Santa Ana, CA 92701 (714) 667-0706	Site: Fine Line Paint Corp. Address: 12200 Los Nietos Road, Santa Fe Springs Project: Soil/Groundwater Assessment Date: February 8, 1995	Legend 1 Inch = 20 feet

Appendix 3: Monitoring Well Purging/Sampling Data Sheets

Monitoring Well Purging/Sampling Data Sheet

Location Fire Line Paints

Well Number MW1

Date Installed —

Date Purged 1/25/95

Casing Diameter 4"

Depth to Groundwater 51.05 ft

Casing Depth 73.84 ft

Purging Begun —

Purging Completed —

Water Quality Parameters:

Parameter	Episode 1	Episode 2	Episode 3	Episode 4	Episode 5	Episode 6	Episode 7
pH	7.71	7.31	7.28	7.24			
Temperature	69.4°F	69.0	68.8	68.1			
Conductivity	2840 µS/cm	2810	2820	2830			
Turbidity	—	48.0 NTU	21.1	12.41			

Notes: Approx 40 gallons purged before sampling

Calculation of Borehole Volume

The calculation of one casing volume was obtained from the following equation:

$$BV = 7.48 \times \left[\left\{\pi\left(CD/2\right)^2\right\} \times (WD - GW)\right]$$

Where:

BV = Borehole volume (in gallons)
CD = Casing diameter (ft.)
WD = Well depth (ft.)
GW = Depth to groundwater (ft.)

$= 7.48(.087)22.79$

$= 14.83$ gallons

Calculation of 80% recharge

The 80% recharge level in this well was calculated by the formula:

$$GW_{80} = GW + \left[(WD - GW) - \left\{(WD - GW) \times 80\%\right\}\right]$$

Where:

GW_{80} = Depth to groundwater at 80% recharge (ft.)
GW = Depth to groundwater (ft.)
WD = Well depth (ft.)

$= 51.05 + [(22.79 - (22.79 \times .8)]$

55.60 ft

Monitoring Well Purging/Sampling Data Sheet

Location Fine Line Paints

Well Number B-5 — Date Installed —

Date Purged 1/25/95 — Casing Diameter 4"

Depth to Groundwater 50.76 ft — Casing Depth 63.81 ft

Purging Begun — — Purging Completed —

Water Quality Parameters:

Parameter	Episode 1	Episode 2	Episode 3	Episode 4	Episode 5	Episode 6	Episode 7
pH	7.89	7.37	7.41	7.35			
Temperature	74.3°F	69.0	69.2	68.5			
Conductivity	2920 µMho/cm	2840	2810	2820			
Turbidity	—	18.21	9.54	8.28			

Notes: Approx. 35 gallons purged before sampling.

Calculation of Borehole Volume

The calculation of one casing volume was obtained from the following equation:

$$BV = 7.48 \times \left[\left\{\pi\left(CD/2\right)^2\right\} \times (WD - GW)\right]$$

Where:
- BV = Borehole volume (in gallons)
- CD = Casing diameter (ft.)
- WD = Well depth (ft.)
- GW = Depth to groundwater (ft.)

$7.48(.087)13.05$
$= 8.49$ gallons

Calculation of 80% recharge

The 80% recharge level in this well was calculated by the formula:

$$GW_{80} = GW + \left[(WD - GW) - \left\{(WD - GW) \times 80\%\right\}\right]$$

Where:
- GW_{80} = Depth to groundwater at 80% recharge (ft.)
- GW = Depth to groundwater (ft.)
- WD = Well depth (ft.)

$50.76 + [13.05 - (13.05 \times .8)]$
$= 53.37$ ft

Monitoring Well Purging/Sampling Data Sheet

Location FireLine Paints

Well Number MW2 — Date Installed —

Date Purged 1/25/95 — Casing Diameter 4"

Depth to Groundwater 52.16 ft. — Casing Depth 74.15 ft

Purging Begun — — Purging Completed —

Water Quality Parameters:

Parameter	Episode 1	Episode 2	Episode 3	Episode 4	Episode 5	Episode 6	Episode 7
pH	8.12	7.51	7.43	7.47			
Temperature	71.1°F	68.8	69.4	68.7			
Conductivity	2940 µ/cm	2910	2820	2860			
Turbidity	—	12.10	13.95	6.54			

Notes: Approx. 55 gallons purged before sampling

Calculation of Borehole Volume

The calculation of one casing volume was obtained from the following equation:

$$BV = 7.48 \times \left[\left\{\pi\left(CD/2\right)^2\right\} \times (WD - GW)\right]$$

Where:

BV = Borehole volume (in gallons)
CD = Casing diameter (ft.)
WD = Well depth (ft.)
GW = Depth to groundwater (ft.)

$7.48(.087)21.99$
$= 14.31$ gallons

Calculation of 80% recharge

The 80% recharge level in this well was calculated by the formula:

$$GW_{80} = GW + \left[(WD - GW) - \left\{(WD - GW) \times 80\%\right\}\right]$$

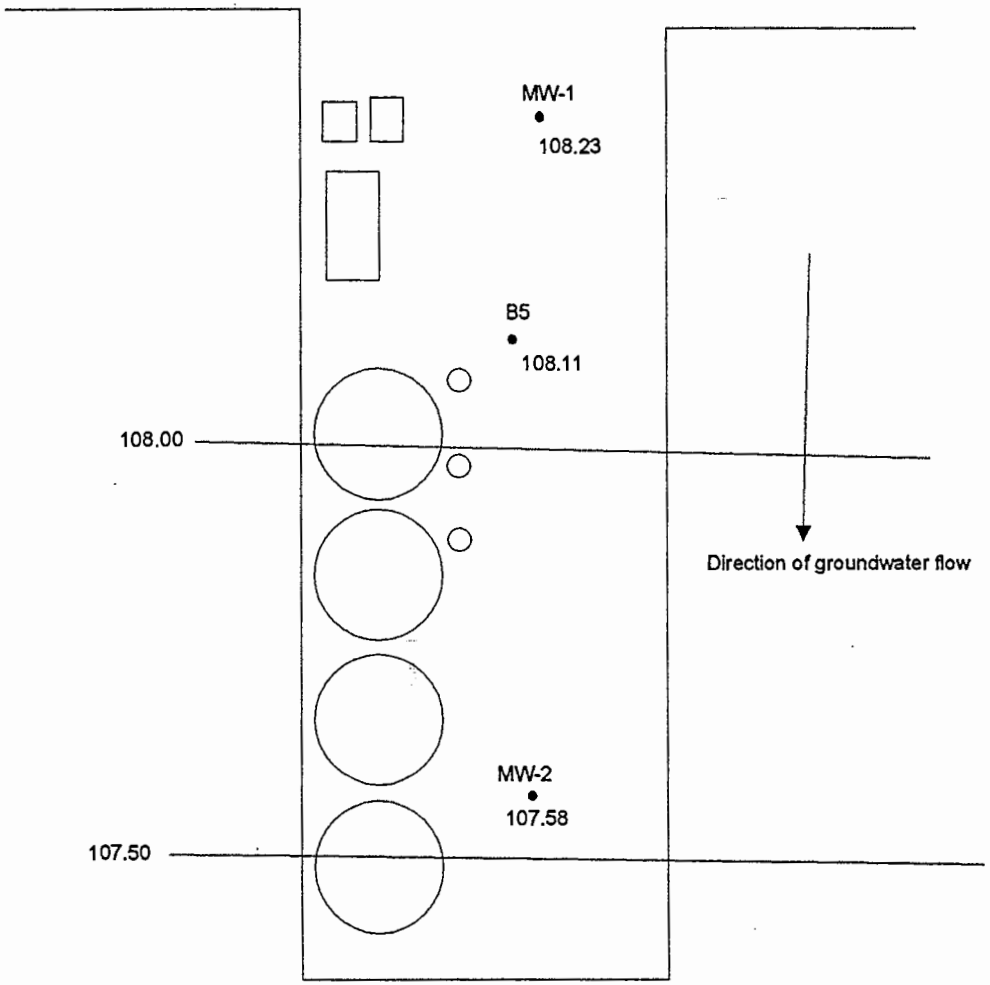
Where:

GW_{80} = Depth to groundwater at 80% recharge (ft.)
GW = Depth to groundwater (ft.)
WD = Well depth (ft.)

$= 52.16 + \left[21.99 - (21.99 \times .8)\right]$
$= 56.55$ feet

Exhibit #4: Groundwater Monitoring Well Locations,
Direction of Groundwater Flow

Fine Line Paint Corp.
Groundwater Monitoring Well Locations
Direction of Groundwater Flow



Dependable Equipment Rental 841 E. Washington Avenue Santa Ana, CA 92701 (714) 667-0706	Site: Fine Line Paint Corp. Address: 12200 Los Nietos Road, Santa Fe Springs Project: Soil/Groundwater Assessment Date: February 8, 1995	Legend 1 Inch = 20 feet

Appendix A: Boring Logs

Dependable Equipment Rental	Borehole Log	Date: January 19, 1995
Project: Fine Line Paint Corp.	Boring #: B6	Page 1 of 1
Ground Elevation: ~ 159 ft.	Sampled by: R. Blankenship	Logged by: R. Blankenship
Boring Method: Hollow stem auger	Sampling Method: Split spoon sampler	

Depth (ft.)	Samples	Blow count	U.S.C.S.	OVA	Description of Lithology
10	■	7-8	ML	--	Poorly graded, very fine grained, silty fine SAND. Dark brown, fill material.
	■	16-19	ML	--	Poorly graded, very fine grained, silty fine SAND. Tan to light brown, slightly moist.
20	■		ML		Poorly graded, very fine grained, silty fine SAND. Tan to light brown, slightly moist.
	■	21-23	ML	--	Poorly graded, very fine grained, silty fine SAND. Reddish brown to brown, slightly moist.
30	■	17-22	ML	--	Poorly graded, very fine grained, silty fine SAND. Reddish brown to brown, slightly moist.
	■	18-25	ML	--	Poorly graded, very fine grained, silty fine SAND. Reddish brown to brown, slightly moist.
40	■	21-28	ML	--	Poorly graded, very fine grained, silty fine SAND. Reddish brown to brown, slightly moist.
	■	16-19	SP		Medium grained, poorly graded SAND. Traces of fine material. Tan to light brown, slightly moist.
50	■	17-21	SP		Medium grained, poorly graded SAND. Traces of fine material. Tan to light brown, damp.
	■	20-21	SP		Medium grained, poorly graded SAND. Traces of fine material. Tan to light brown, wet.
60					Boring terminated at 55' below existing grade.
70					
80					
90					

Dependable Equipment Rental	Borehole Log	Date: January 19, 1995
Project: Fine Line Paint Corp.	Boring #: B7	Page 1 of 1
Ground Elevation: ~ 159 ft.	Sampled by: R. Blankenship	Logged by: R. Blankenship
Boring Method: Hollow stem auger	Sampling Method: Split spoon sampler	

Depth (ft.)	Samples	Blow count	U.S.C.S.	OVA	Description of Lithology
10	■	9-11	ML	--	Poorly graded, very fine grained, silty fine SAND. Dark brown, fill material.
	■	12-15	ML	--	Poorly graded, very fine grained, silty fine SAND. Tan to light brown, slightly moist.
20	■		ML		Poorly graded, very fine grained, silty fine SAND. Tan to light brown, slightly moist.
	■	28-31	ML	--	Poorly graded, very fine grained, silty fine SAND. Reddish brown to brown, slightly moist.
30	■	44-50	ML	--	Poorly graded, very fine grained, silty fine SAND. Reddish brown to brown, slightly moist.
	■	25-36	ML	--	Poorly graded, very fine grained, silty fine SAND. Reddish brown to brown, slightly moist.
40	■	22-31	ML	--	Poorly graded, very fine grained, silty fine SAND. Reddish brown to brown, slightly moist.
	■	18-27	SP		Medium grained, poorly graded SAND. Traces of fine material. Tan to light brown, slightly moist.
50	■	16-23	SP		Medium grained, poorly graded SAND. Traces of fine material. Tan to light brown, damp.
	■	19-21	SP		Medium grained, poorly graded SAND. Traces of fine material. Tan to light brown, wet.
60					Boring terminated at 55' below existing grade.
70					
80					
90					

Appendix B: Laboratory Analysis Report, Associated Laboratories, Inc.